LETTERS TO THE EDITOR

Regarding "Carotid endarterectomy with adjunctive carotid cephalad stenting: Complimentary, not competitive techniques"

It was with great interest that we read the article by Tameo, Dougherty, and Calligaro[1] describing their experience with adjunctive cephalad stenting of the internal carotid artery at the time of carotid endarterectomy (CE). The 14 reported cases involved salvage of technically unacceptable distal internal carotid artery end-points discovered at the completion of endarterectomy. We were pleased that the authors opted to manage these patients using concepts and techniques first brought to attention in 1999 and 2000, respectively. Melissano et al[2] first reported salvage of an endarterectomy through adjunctive cephalad stenting. Ross and Ranval[3] expanded on Melissano et al's case report by reporting anatomic considerations, detailed technique, and clinical experience in 13 such cases.

In our original description, the importance of adequate anticoagulation was emphasized, as were proper sheath fixation and use of self-expanding stents without necessity for balloon dilatation. In patients who had not required shunts during the endarterectomy, Tameo et al modified our original technique by occluding flow in both the external carotid artery and the common carotid artery during stenting with vigorous aspiration prior to flow restoration, theoretically reducing but not eliminating the risk of embolization. We have not found this necessary and have concerns that additional clamping, cessation of flow, and re-establishment of flow may entail equal or perhaps greater risk.

Since our report appeared in 2000, we have been contacted by a number of surgeons who have, like Tameo et al, successfully utilized the techniques that Melissano et al and our group described to salvage otherwise difficult CEs in which posterior plaque extended far more cephalad than preoperatively anticipated and contributed to unsatisfactory results either recognized forthright or upon completion studies. Given the utility of the technique and considering that most practicing vascular surgeons now have endovascular skills and fluoroscopically-equipped operative suites, it is our impression that this technique for endarterectomy salvage is well known, and in appropriate situations (absence of thrombus), utilized as a preferable alternative to open revision of the fresh endarterectomy. Our results were gratifying and we were pleased to see that the experience from Philadelphia was similarly favorable.

Endpoint defects affecting operative management may occur in up to 5% of carotid endarterectomies when completion studies are used. This technique is so expeditious and the desire for endarterectomy perfection is so great that caution against overutilization is warranted. Endpoint imperfection may be exacerbated by spasm of the internal carotid artery. Efforts such as the slow infusion of 100 to 200 micrograms of nitroglycerin followed by repeat angiography may prevent unnecessary use of this technique. This is especially true in cases in which the imperfect result is not expected based on the surgeon's overall assessment of the extent of the posterior plaque and visual inspection of the endpoint prior to closure. Because the natural history of stents placed in the distal cervical portion of the internal carotid artery, as related to restenosis, is unknown, it is imperative that adjunctive cephalad stenting be used judiciously.

The arteriogram shown below (Fig) was taken to evaluate recurrent disease 11 years and 6 months following carotid endarterectomy with cephalad stenting in the index case from our original experience published in 2000. The bracket demonstrates the internal carotid stent. A moderate internal carotid stenosis (thin arrow) has developed at the distal end of the stent at the skull base while recurrent artherosclerosis (large arrow) has developed at the site of the original carotid bulb. This is the second case from our original series in which we have documented stenosis at the distal end of the stent near the level of the C-1-2 interspace. While it is clear that cephalad stenting can provide a safe and expeditious solution to unacceptable endpoints in difficult endarterectomies, the price paid may be complex late recurrent disease.

Fig. 1.

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